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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,008	07/03/2002	Gilbert Wolrich	10559-311US1	5753

7590 12/14/2004	EXAMINER	
Fish & Richardson	PAN, DANIEL H	
225 Franklin Street		
Boston, MA 02110-2804	ART UNIT	PAPER NUMBER
	2183	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		10/070,008	WOLRICH ET AL.
		Examiner	Art Unit
		Daniel Pan	2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>28 February 2002</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>28 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>02/28/02, 06/09/04</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1.   Claims 1-21 are presented for examination.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed
publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public
use or on sale in this country, more than one year prior to the date of application for patent in the United
States.

Claims 1-9,11-13,15,17,19-21 are   rejected under 35 U.S.C. 102(a) as being

anticipated by Hasegawa (5,724,563).

1.   As to claims 1,4, 15,17, 21, Hasegawa disclosed a computer system including

at least :

a) a branch instruction [Branch]   that caused a branch in execution of an instruction

stream (instruction at the target address and the sequence) based on any specified

value being true or false and including a token that specified number of instructions in

an instruction stream that were after the branch instruction (see the instructions

following the Branch) to execute before the branch operation (see the number of

successive instructions designated by the predictive branch before the branch control

flow was changed in col.3, lines 25-30, lines 55-59, col.9, lines 29-33, col.12, lines 37-

46, see figs.5, 10B Branch after 3 to X , Branch after 3 to X, Branch after 4 to X, see

the decision on branch condition in col.1, lines 19-22 for the background teaching of

true or false, see also col.11, lines 14-24, col.12, lines 6-13 for judging a branch

condition).

2.   As to the deferring of the branch performance based on the token specifying number of instructions in claim 17, Hasegawa also included deferring the branch operation based on the token number specified in instruction (see the branch instruction format in 2, see the field for storing the number of instructions, see also fig.5, and fig.10B).

3.   As to claim 2, Hasegawa also included a branch guess operation [x].

4.   As to claim 3, Hasegawa also included execution of Ith instruction (see fig.5A, and fig.5B the numerical value 3, or the counter value counting down the order of instructions , see also the number 3 and 4 in the branch instruction in fig.10B) .

5.   As to claim 5, Hasegawa also included symbolic representation of the address branched, and the number of the instruction to be executed before branching (see Branch 3 X in fig.5).

6.   AS to claims 6,7,19,20,   Hasegawa was also directed to efficiency of program coding (see the application program in col.1, lines 42-48 , col.3, lines 25-32 for background).

7.   AS to claims 8, Hasegawa also included unconditional branch (see col.5, lines 50-53) and ALU conditional branch (see the arithmetic flags in col.11, lines 19-52).

8.   As to claim 9, see branch condition bit c,v in col.11, lines 25-32).

9.   As to claim 11, Hasegawa also included a specified context (see the number of instructions 3 in the Branch after 3 X in fig.5).

10.   As to claim 12, Hasegawa included a selected state name of a selected value (see the opcode value in Table 1 col.11).

11.   As to claim 13, Hasegawa also deasserted a specified signal (see the "0" or "1"

in the flag in col.11, lines 32).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

12.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Hasegawa (5,724,563) in view of Khim Yeoh et al. (5,274,770).

13.   As to claim 10, limitation of the parent claim 1 have been discussed in previous

paragraph , therefore, it will not be repeated herein Hasegawa did not specifically shoed

the match or mismatch of the byte compare value as claimed. Hasegawa disclosed a

comparison of arbitrary bit number of an opcode in a long word (see the branch

instruction) with a 4 bit compare value (see the judgment of the condition code based

on the opcode in col.11, lines 19-40). Hasegawa's condition code included only 4 bits.

However, Khim Yeoh disclosed a system for performing a conditional branch based

a comparison of values in bytes (see col.3, lines 15-18). It would have been obvious to

one of ordinary skill in the art to use Khim Yeoh in Hasegawa for including the match

and mismatch (i.e. comparison)) of the byte compare value as claimed because the use

of Khim Yeoh could expand the processing structure of Hasegawa to accept additional

conditional parameters, such as the conditional code of more than 4 bits, thereby

enhancing the adaptability of the system status, and because one of ordinary skill in

the art should be able to recognize the arbitrary bit number (e.g. 3, 4,8,16 etc.) of the

conditional opcode in Hasegawa could   also be applicable in the condition code to

increase the bit width, and for the above reasons provided a motivation.

14.   Claims 14,16, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Hasegawa (5,724,563) in view of Brucker et al. (4,742,451).

15.   As to claims 14,16,18,   limitation of the parent claims 1,15, 17 have been

discussed in previous paragraph , therefore, it will not be repeated herein. Hasegawa

did not specifically showed the prefetch of the instruction for the branch taken condition

as claimed. However, Brucker disclosed a conditional branch system including a

prefetch of instruction for a branch taken (see the prefetch in col.7, lines 28-33, lines

34-53). It would have been obvious to one of ordinary skill in the art to use Brucker in

Hasegawa for perfecting the instruction for the branch taken as claimed because the

use of Brucker could provide additional capability to adapt to specific processing

requirement, such as the branch prediction, of the branch instruction in Hasegawa,

thereby reducing the repeated cycle of branch result, and therefore, increasing the

overall time of the branch processing, and it could be readily achieved by predefining

the control tokens of branch prediction in Brucker , such as prefetch on taken , not

taken, into the configuration file of Hasegawa so that the specific branch prediction

could be recognizable by Hasegawa in order to achieved the enhanced processing

performance, ion doing so, provided a motivation. Hasegawa is used as primary

reference because it shoed clearly the number of instructions specified in the branch

instruction. Brucker is used to supplement the teaching of the prefetch for branch taken.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Chi (5,701,435) is used for showing the teaching of the prefetching and the conditional branch at particular address (see col.4, lines 16-44, see also col.5, lines 38-67, col.6, lines 1-19) ;

b) Lass (5,165,025) is cited for the background teaching on the true and false path of the conditional branch and the deferred branch (see 1, lines 14-20, see also the delayed branch in col.3, lines 7-12);

c) Dyer et al. (5,640,538) is cited for the teaching of the state of specified name in branch instruction (see col.11, lines 8-10).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan Pan whose telephone number is 703 305 9696, or the new number 571 272 4172. The examiner can normally be reached on M-F from 8:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chan, can be reached on 703 305 9712, or the new number 571 272 4162. The fax phone number for the organization where this application or proceeding is assigned is 703 306 5404.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

21 Century Strategic Plan

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PRIMARY EXAMINER
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